

Cytokine release syndrome assessment for CAR-T cell therapy

Assessment and grading of CRS should be **done at least twice per day** and whenever a change in the patient's status is observed.

Surname	MRN
Forename	D.o.B
Address	NHS No.

Date	Baseline																		
Time																			
Temperature $\geq 38^{\circ}\text{C}$																			
Hypotension																			
Hypoxia																			
CRS grade																			

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Grading of cytokine-release syndrome (CRS)

CRS parameter	Grade 1	Grade 2	Grade 3	Grade 4
Fever ¹	Yes	yes	Yes	yes
			With	
Hypotension	None	Not requiring vasopressors	Requiring a vasopressor with or without vasopressin	Requiring multiple vasopressors (excluding vasopressin)
			And/or ²	
Hypoxia	None	Requiring low-flow nasal cannula ³ or blow-by	Requiring high-flow nasal cannula ³ , facemask, nonrebreather mask, or Venturi mask	Requiring positive pressure (eg, CPAP, BiPAP, intubation and mechanical ventilation)

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Organ toxicities associated with CRS may be graded according to CTCAE v5.0 but they do not influence CRS grading.

1. Fever is defined as temperature $\geq 38^{\circ}\text{C}$ not attributable to any other cause. In patients who have CRS then receive antipyretic or anticytokine therapy such as tocilizumab or steroids, fever is no longer required to grade subsequent CRS severity. In this case, CRS grading is driven by hypotension and/or hypoxia.
2. CRS grade is determined by the more severe event: hypotension or hypoxia not attributable to any other cause. For example, a patient with temperature of 39.5°C , hypotension requiring 1 vasopressor, and hypoxia requiring low-flow nasal cannula is classified as grade 3 CRS.
3. Low-flow nasal cannula is defined as oxygen delivered at ≤ 6 L/minute. Low flow also includes blow-by oxygen delivery, sometimes used in paediatrics. High-flow nasal cannula is defined as oxygen delivered at >6 L/minute.

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